NEW HAMPSHIRE RIVERS MANAGEMENT AND PROTECTION PROGRAM

River Nomination Form

I. NOMINATION INFORMATION

A. Name of River: SACO RIVER

B. River Location and Length: Main stem of the Saco River from its origin in the town of Carroll to the NH-Maine border. Approximate length = 40 miles.

C. Sponsoring Organization: Saco River Advisory Council

Contact Person: Sarah Kimball

Address: P.O. Box 596, Jackson, NH 03846

Phone Number (daytime): 383-6600

B. Briefly describe the most important resource values which are present and why you believe the values are significant from either a statewide or local perspective. For example, if a significant statewide recreational resource is present, identify the type and location of the resource and explain why you believe it is of statewide significance. If you feel the value is threatened, explain why.

The Saco River has its origins in the White Mountains, and its upper portion flows through the White Mountain National Forest. Because of its mountainous location, and the protected status of a large portion of its watershed, the value of the natural resources of the Saco River are of statewide significance. The free-flowing nature of the river and the lack of hydroelectric facilities, impoundments or water withdrawals also increase the value of the natural resources of the Saco River.

Tourism is a major industry of the Mt. Washington Valley, the region through which the Saco River flows. With the Saco River providing the opportunity for canoeing, swimming, fishing, camping, and sightseeing, it is a significant resource for the local economy.

Because of the exceptional quality of the canoeing, both white-water and smooth, and the beauty and sparsely developed nature of the surrounding area, the recreational resources of Saco River have significant value at the statewide level.

Two potential threats to the high water quality of the Saco River exist, both in Conway. The North Conway Water Precinct has purchased land adjacent to the Saco River for the purpose of constructing a sewage treatment plant. Though specific plans have not been made available at this time (October, 1989), the Precinct indicates that the plant itself would be located on land above the 100-year floodplain, but the sludge produced would be spread on the adjacent fields. The majority of the parcel owned by the Precinct is either in the 100 year floodplain or in the floodway.

The second potential threat would be the location of the Route 16 by-pass around North Conway. Though the by-pass has been under discussion and study for countless years, a specific route has not yet been chosen. Should the by-pass be built in close proximity to the Saco River, there would be a potential f pollution by road deicing compounds during the snow season.

IV. OTHER SUPPORTING INFORMATION

In addition to the information required by the nomination form, sponsors are encouraged to submit any other information which they believe will support the nomination of the river. This may include a visual presentation (for example, a slide program of the river or maps showing the location of significant resources) or studies. Use the space below to indicate what, if any, supporting information has been submitted.

1. Three sets of maps showing: Natural Features, Recreation, and Land Use, respectively.

2. "Saco and Swift River Landowner Questionnaire - Compilation and Analysis of Results" (The report referred to in Section III, above.)

V. RIVER CLASSIFICATIONS

Which river classification(s) do you recommend for this river/segment?

Saco River in Carroll and Harts Location: Natural
Saco River in Bartlett and Conway: Rural

The first 12 miles of the Saco River, within the towns of Carroll and Harts Location essentially meet the criteria of a "Natural" River. Though the distance between the river and Route 302 is not always greater than 250 feet (due to the narrowness of Crawford Notch), a vegetative buffer exists next to the river and the character of the river corridor is natural and undeveloped.

In Bartlett and Conway, the Saco River and its corridor meet the criteria for a "Rural" River.

In Harts Location the Saco River flows through Crawford Notch, a spectacular, narrow, steep-sided valley with exposed rock cliffs. The upper portion of the Saco River is characterized by fast-moving water over rocks and boulders with frequent cascades. In Crawford Notch, near the mouth of Nancy Brook, the river has cut a narrow, steep-sided gorge into the bedrock forming a short turbulent waterfall. Many of the tributaries of the Saco River in Crawford Notch have waterfalls or cascades: the Flume Cascade and the Silver Cascade at the head of the Notch, Ripley Falls on Avalanche Brook, Arethusa Falls on Bemis Brook, and Nancy Cascades on Nancy Brook. Lucy Brook, a tributary of the Saco River which flows through Bartlett and Conway, has carved smooth channels through bedrock ledges to form what is known as Diana's Baths. Other unique geological features adjacent to the rivers are a number of steep, sheer cliffs such as Frankenstein Cliffs, Humphrey's Ledge, Cathedral Ledge, and White Horse Ledge.

2. Wildlife Resources

List the species of mammals, birds, reptiles, and amphibians commonly found in the river and corridor. List any rare or endangered animals or habitat supported by the corridor environment, including location.

According to the literature review conducted by the Saco River Basin USDA Cooperative Study (1983a), there are 36 species of fish, 32 species of amphibians and reptiles, 165 species of birds, and 56 species of mammals using the various habitats which occur in the Saco River watershed. Because the dominant habitat type found in the Saco River watershed is forestland (89%), the most common species occurring would be those which can utilize the forest habitat. With a large portion of the watershed being within the White Mountain National Forest, the continued presence of forest habitat of sufficient size to support stable populations of most of the existing forest species can be assured.

Habitats other than forestland occurring within the Saco River watershed include open fields, tilled land and urban land. Current trends would indicate that the most likely habitat change in the future would be an increase in the amount of urban land. Though there are some wildlife species which can utilize urbanized land, they are usually much smaller in number than those species which are displaced when land becomes urbanized. Because most of the urban growth and residential development is located in the valleys, a larger proportion of the wildlife habitat being lost to urbanization is occurring near the rivers.

Included in the list of species compiled by the Saco River Basin USDA Cooperative Study (1983a) are 13 endangered or threatened species. Section 1532(6) of the Endangered Species

table. Shade provided by forests functions to keep water temperatures lower.

b. Wetlands

Wetlands are those areas where the presence of water, at or near the surface of the soil, is a dominant factor controlling the types of plant and animal life occurring there. Among the beneficial functions of wetlands are the absorption of precipitation, reducing the chance of flooding and recharging groundwater supplies, the removal of certain pollutants from the water, and as important wildlife habitat, especially for waterfowl.

The U.S Fish and Wildlife Service conducted a National Wetlands Inventory in 1975 to establish a data base covering the current status of the nation's wetlands. The types of wetlands present in the New Hampshire portion of the Saco River watershed were classified as Riverine (streams and rivers), Lacustrine (lakes) and Palustrine (freshwater wetlands dominated by trees, shrubs and persistent emergent plants). Of the total acreage of the towns along the Saco and Swift Rivers, approximately 4% is classified as wetland, with over half of the wetland area being of the palustrine type. (Saco River Basin USDA Cooperative Study, 1983a)

The soils maps in the Soil Survey of Carroll County (USDA, 1977) show a number of small areas of wetland soils adjacent to the Saco River. One group of alluvial wet soils is located along the river in Harts Location, and another group is just upstream from Bartlett village. In the broad intervale that runs from Glen to the Maine border, there are scattered small wetland areas in the floodplain, especially along small tributaries and old river channels of the Saco River.

c. Endangered species

An endangered species at the state level, the Inflated Sedge, Carex bullata, occurs near Saco Lake at the headwaters of the Saco River. In the same locality is the Northern Water-starwort, Callitriche anceps, which is of historical occurrence in New Hampshire. (New Hampshire Natural Heritage Inventory, letter of 10 October 1989)

Located in five different places along the Saco River in Conway is the rare natural community called New England Riverwash Hudsonia Barrens. Within this community is the Hairy Hudsonia, Hudsonia tomentosa, a critically endangered species at the state level. This is a low, heath-like shrub has been found in six different locations along the Saco River. It is considered critically endangered in New Hampshire because of its few known locations and the extreme vulnerability of its habitat to wind

5. Water Quality

a. Which state water quality classification applies to this river? Class A, Class B, or Class C

The water quality of the Saco River is generally good to excellent. The main stem of the Saco River is classified as Class B water, while the upper portions of a number of its tributaries are classified as Class A water. These tributaries include Albany Brook, Bartlett Brook, Meserve Brook, the East Branch of the Saco, Kearsarge Brook, Hurricane Mountain Brook, and Artist Falls Brook. A classification of Class A or B means that the water is acceptable for swimming, fish habitat, and, after adequate treatment, for drinking water supplies. Of all the river basins evaluated by the NH Water Supply and Pollution Control Division, the Saco River Basin is the only basin in which all of the surface waters meet the goals of the Clean Water Act (Flanders, 1988).

b. If the river is not currently supporting its water quality classification, identify the existing major causes of deficient water quality (e.g. industrial or sewage pollution, agricultural fertilizer run-off) and possible corrective measures (e.g. regulation, enforcement, land-use controls).

There is little or no documented evidence of any significant non-point source pollution of the Saco River from agricultural or forestry activities. Because cropland represents less than 1% of the basin area and erosion rates are relatively low, the potential for cropland erosion as a source of pollution is considered to be minimal. The small percentage of cropland also indicates that the threat of pollution due to agricultural chemicals should be low. Animal waste is not considered to pose a pollution threat because of the relatively small number of farm animals. With the types of forestry practices used and the pattern of ownership of forest land in the basin, it is unlikely that forestry-related water pollution will become significant. (Saco River Basin USDA Cooperative Study, 1983)

Another potential source of pollution would be erosion and sedimentation from construction sites. In recent years the Mt. Washington Valley region has experienced rapid growth in tourism, which has resulted in the construction of a large number of vacation homes. Many of these residential developments are located near the Saco River and its tributaries. As long as there is vigilance on the part of the state and local authorities to ensure that the developers adhere to effective erosion control practices, pollution from residential construction can be expected to be minimal.

Compounds used for road de-icing in the winter are a potential water quality threat. Major road construction adjacent to the river would only increase the threat of pollution.

residential. Because of the relatively low population, the land near the river does not have a highly developed appearance. The combined permanent populations of the NH towns along the Saco River was just over 9000 in 1980 (Saco River Basin USDA Cooperative Study, 1983).

Due to the rugged terrain in most of the New Hampshire portion of Saco River watershed, there is no heavy industry in the river valley. During the late 19th and early 20th centuries, logging was a major industry in the region, and the Saco River was used for log drives to the mills downstream. However, due to the lack of holding dams and the unpredictability of high water, the log drives were soon abandoned.

Frequent flooding of the broader intervales in Bartlett and Conway is a source of fertile soil. Agricultural activities have been and will continue to be the most productive use of these floodplain areas.

b. Roads, Railroads, Bridges and Rip-raps

Just below Saco Lake at the head of Crawford Notch, the Saco flows through a conduit under Route 302. Within Crawford Notch, Route 302 parallels the Saco River and crosses it on bridges three times. In Bartlett village, there is a bridge where River Road crosses the Saco River. Route 302 crosses the Saco River again in Glen, just north of its junction with West Side Road, with a steel and concrete bridge. The old covered bridge still stands beside its replacement. In North Conway, River Road requires three bridges to cross the Saco River, one for each of the three channels at that point. Between Bartlett and Conway Route 302-16 parallel the Saco river on the east, while West Side Road follows the river on the west. There is a covered bridge crossing the Saco River north of Conway village, and a steel and concrete bridge where Route 16 crosses. Between Conway village and Center Conway, Route 302 crosses the Saco River one more time before the New Hampshire-Maine border. Along this last section of river, Route 302 is to the south of the river, while the East Conway Road parallels the river to the north.

Railroad tracks parallel the Saco River for most of its length in New Hampshire. At present the only rail traffic is the Conway Scenic Railroad which runs between Conway and North Conway as a tourist attraction during the warm months. There are five railroad bridges across the Saco River: between Sawyer River and Sawyer Rock; below Sawyer Rock; just downstream from the confluence of the Saco River with Rocky Branch; between North Conway and Conway; and just before Center Conway.

There are two federally-funded rip raps in Conway. One was constructed in 1973, just upstream from First Bridge in North Conway to protect the bridge. The other was built in 1972 in East Conway to prevent possible rechanneling of the river which

occurred in March, 1953 and the minimum discharge of 40 cubic feet per second occurred in March 1932 (Johnson et al., 1987)

B. MANAGED RESOURCES

1. Impoundments

List all dams in the river. Briefly describe these structures, including their location and effect on the river and corridor.

The Saco River is essentially free-flowing within New Hampshire. Although there are eleven dams on the main stem of the Saco River in Maine, there are only two minor dams on the main stem of the Saco River in New Hampshire. A small dam maintains the level of Saco Lake (approximately 6 acres in size) at the head of the Saco River. About four miles downstream a small dam forms a half acre pond at the Willey House in Crawford Notch State Park. This pond is often drained at the end of the summer.

2. Water Withdrawals and Discharges

a. List any significant water withdrawals from the river. Briefly describe their purpose (irrigation, for example) and location. Indicate if the river is an existing or potential source of public water supply.

Although none of the towns along the main stem of the Saco River withdraw water directly from the river for public water supply, water is withdrawn from the large groundwater aquifer associated with the river by numerous domestic, community and municipal wells. Two towns draw water from tributaries to the Saco River. The intake for the Jackson Water Precinct is in a sand filter beneath the Ellis River. The Upper Bartlett Water Precinct uses a small reservoir on Albany Brook in Bartlett as its water source. Wells adjacent to the Saco River serve as water sources for the Lower Bartlett Water Precinct, the North Conway Water Precinct, and the Conway Water Precinct, as well as the Attitash Ski Area and a number of residential developments.

b. List any state-approved surface discharges to the river and identify the source of the discharge. Note the location and condition of any known discharges occurring without state approval.

The National Pollutant Discharge Elimination System (NPDES) requires that all dischargers have a NPDES permit. The two dischargers within the Saco River basin with NPDES permits are the Conway Village Fire District wastewater treatment facility and the White Mountain Laundry in North Conway. Both dischargers are in compliance with their water quality management plans, and

Picturesque scenery, outstanding trout fishing, and an extensive network of foot trails going up all major tributaries of the Saco River began to attract numerous tourists into the valley as early as the mid-19th century. Large hotels and summer residences, including a number of architecturally significant buildings, were constructed during this resort era.

The Conway Scenic Railroad, running between North Conway and Conway, is a reminder of the area's rich railroad and logging history. Rail lines were built and operated throughout the valley from the 1870s through the turn of the century. Numerous logging camps were constructed throughout the period along all major tributaries to the Saco River. Today many of the area's popular roads and trails, including the Kancamagus Highway, reside on former railroad beds. In 1911, the White Mountain National Forest was established, thereby bringing about the gradual demise of the damaging logging practices of that time.

2. Community Resources

Briefly describe how the river is recognized as a significant community resource.

The towns along the Saco River in New Hampshire are considered to be part of the region known as the Mt. Washington Valley. The main industry of this region is tourism. In winter, the major attraction is skiing, at the downhill ski areas as well as the cross-country touring centers. During the non-snow seasons, the recreational pursuits of the tourists are more diverse, and include canoeing, fishing, hiking, camping, swimming, and sight-seeing, all which occur in the river or the river valley.

Many people attracted to the region decide to purchase vacation or retirement homes in the area. The combination of the river valley within the hills and steep mountainsides presents a scenic beauty which is a very strong selling point to prospective buyers.

Thus, the river not only provides the opportunity for a number of popular recreational activities, its presence adds to the overall attractiveness of the area. Because the river is one of the major natural resources that attracts tourists to the Mt. Washington Valley, the protection and management of the river in its natural state is of major importance to the economy of the region.

their experience on the Saco River, nearly 300 river users identified the river's wilderness setting, clean clear water, sandy beaches, and surrounding scenery as the factors that contributed most to their overall experience. Trash, inconsiderate users and crowding at various locations were the concerns of these same users.

The rapid growth in the river usage can be attributed directly to the rise in popularity of canoeing. Nearly eighty-six percent of responses to a Saco River user questionnaire indicated that canoeing was their primary form of recreation while on the Saco River (Southern Maine Regional Planning Commission, 1983).

Depending on the time of year and the section of the river chosen, canoeists of all abilities can find appropriate recreational challenge and enjoyment on the Saco River. In the spring when the water level is moderate to high, the upper section of the Saco River offers one of the most exciting whitewater canoeing stretches in central New England. Between the Gorge at Notchland and the village center of Bartlett are five miles of continuous rapids with occasional drops which require whitewater expertise to navigate. Below Bartlett the rapids are interspersed with quick water and are not as difficult to negotiate. From North Conway to the Maine border, the river is mainly smooth water except for a few sets of rapids between Conway and Center Conway.(AMC River Guide, 1989)

The availability of clear, clean water along the Saco River as well as the presence of sandy beaches provide an excellent environment for swimming, tubing and other forms of water play. Swimming occurs in all sections of the river throughout the summer but the heaviest use occurs on weekends at popular access points such as the third iron bridge in Harts Location, the Bartlett Beach, along West Side Road, at the First Bridge in North Conway, at Davis Park in Conway, and the Smith-Eastman Recreation Area in Center Conway.

As stated above, campgrounds are located along the Saco River from Crawford Notch State Park to Conway. Both private and publicly owned and operated facilities are available to provide a full spectrum of camping opportunities. Wilderness camping also occurs within the White Mountain National Forest and on isolated sandbars and on private lands adjoining the river.

The Saco River and its tributaries are trout streams. The cold, clear, fast-moving water between Crawford Notch and Conway was once recognized as being one of the premier brook trout streams in the Northeast. Heavy fishing pressure and changing land uses eventually led to a decline in the fishery. Today the Saco valley supports only a low density of fish. The New Hampshire Department of Fish and Game and the local chapter of Trout Unlimited carry out a low-level stocking program each year

E. OTHER RESOURCES

1. Scenic Characteristics

Briefly describe significant scenic focal points along the river corridor (i.e., indicate the location of views to and from the river).

The Saco River exhibits outstanding visual characteristics. The headwater areas lie high within the White Mountains and offer outstanding views of the surrounding mountain ranges and the valleys below. The headwater areas have been described by the U.S. Forest Service, in their Land and Resource Management Plan for the White Mountain National Forest as visually "distinctive".

Along its length the river exhibits a variety of visual characteristics including waterfalls, rapids with rock-strewn bottoms and banks, large clear pools, and slow meandering bends containing sandy bottoms. Enclosing these physical features are a variety of forest types including spruce-fir, mixed northern hardwoods, aspen-paper birch all intermingled with open meadows and fields in a mosaic pattern. The open pastures, orchards, and agricultural fields that adjoin the Saco River in the town of Conway provide outstanding pastoral scenes when combined with historic farmsteads, covered bridges, and the surrounding mountains.

The Saco River can be observed from several roads and highways, particularly Route 302. Near the towns of Bartlett and Conway there is a higher frequency of man-made developments including roads, bridges, railroad tracks and trestles, and residential developments.

2. Land Use Controls

Identify municipalities with existing master plans and/or zoning ordinances within the river corridor. Identify local land use controls which affect the river corridor (i.e., zoning, easements, subdivision regulations).

Harts Location: A Land Use Ordinance was first adopted in 1973. The Ordinance is very short and generally restrictive. There are no specific environmental protections, other than those adopted by state agency requirements. One general provision states that "no land or water in Harts Location may be used for any activity or use that may be obnoxious or offensive by reason of the production or emission of dust, odor, smoke, refuse matter, fumes, noise, or similar conditions, or that is detrimental or injurious to the comfort, peace, enjoyment, health or safety of the community or the immediate neighborhood or lending to its disturbance or annoyance".

References

Appalachian Mountain Club, 1989. AMC River Guide: New Hampshire, Vermont. 2nd edition, Appalachian Mountain Club Books, Boston.

Childs, Albert, and Bruce Platt, 1966. Watershed analysis: Saco River. White Mountain National Forest, Saco Ranger District, Internal Report.

Flanders, Richard, 1988. New Hampshire water quality report to Congress 305(b). Department of Environmental Services, Water Supply and Pollution Control Division.

Harp, Elmer, 1977. A cultural resources evaluation of the White Mountain National Forest area, New Hampshire - Maine. USDA, USFS, Contract R4Q#16-WM-76T, White Mountain National Forest, Laconia, NH.

Johnson, Carole, Dorothy Tepper, and Daniel Morrissey, 1987. Geohydrologic and surface-water data for the Saco River valley glacial aquifer from Bartlett, New Hampshire to Fryeburg, Maine: October 1983 through January 1986. U.S Geological Survey, Open-file Report 87-44. 80 pp.

National Flood Insurance Program, 1979. Flood Boundary and Floodway maps for the towns of Bartlett and Conway, NH

New England River Basins Commission, 1980. Saco and southern Maine coastal river basins overview. 137 pp. plus appendices.

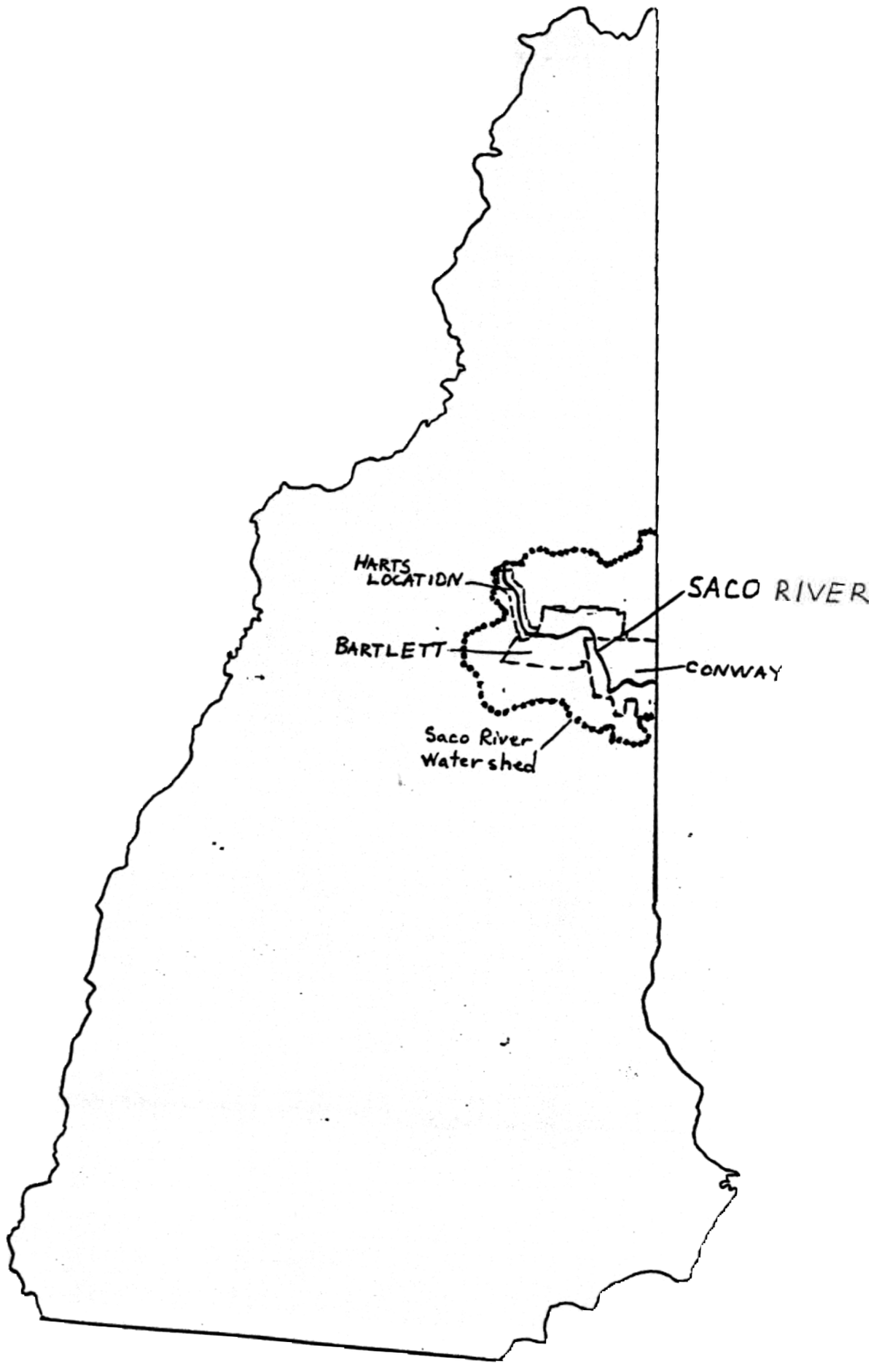
New England River Basins Commission, 1981. Water, watts, and wilds: Hydropower and competing uses in New England. 136 pp.

New Hampshire Water Supply and Pollution Control Commission, 1975. Saco River basin water quality management plan. Staff Report No. 69.

New Hampshire Water Supply and Pollution Control Commission 1979. Saco River basin water quality management plan. Staff Report Number 106. 116 pp. plus appendices.

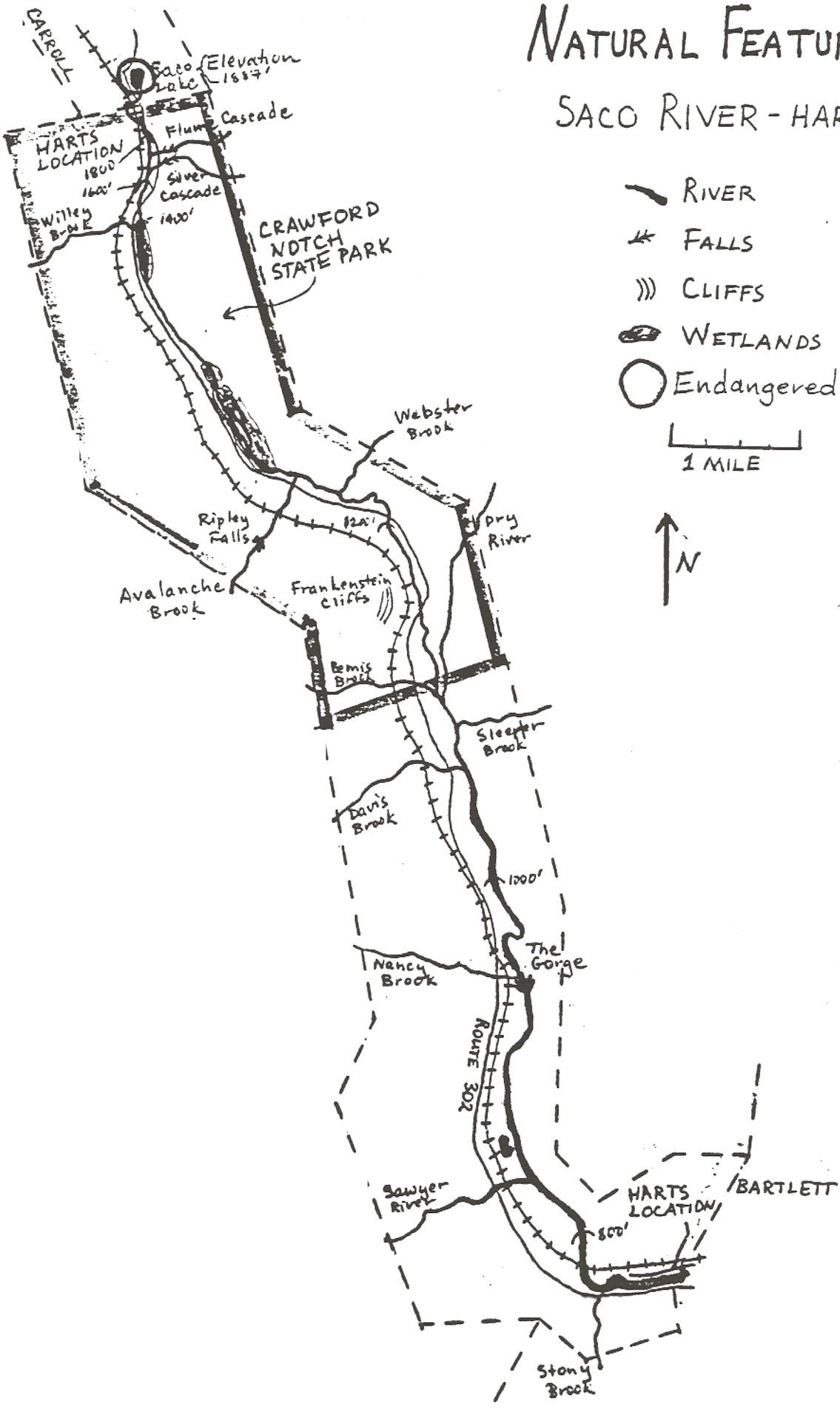
North Country Council, 1981. Conway Master Plan. Town of Conway, NH.

Pendery, Steven R. and R. Stuart Wallace, 1979. A cultural resource evaluation of the White Mountain National Forest, New Hampshire - Maine. USDA, USFS, Contract #01-3210, White Mountain National Forest, Laconia, NH.


HARTS LOCATION
SACO RIVER
BARTLETT
CONWAY
Saco River Watershed

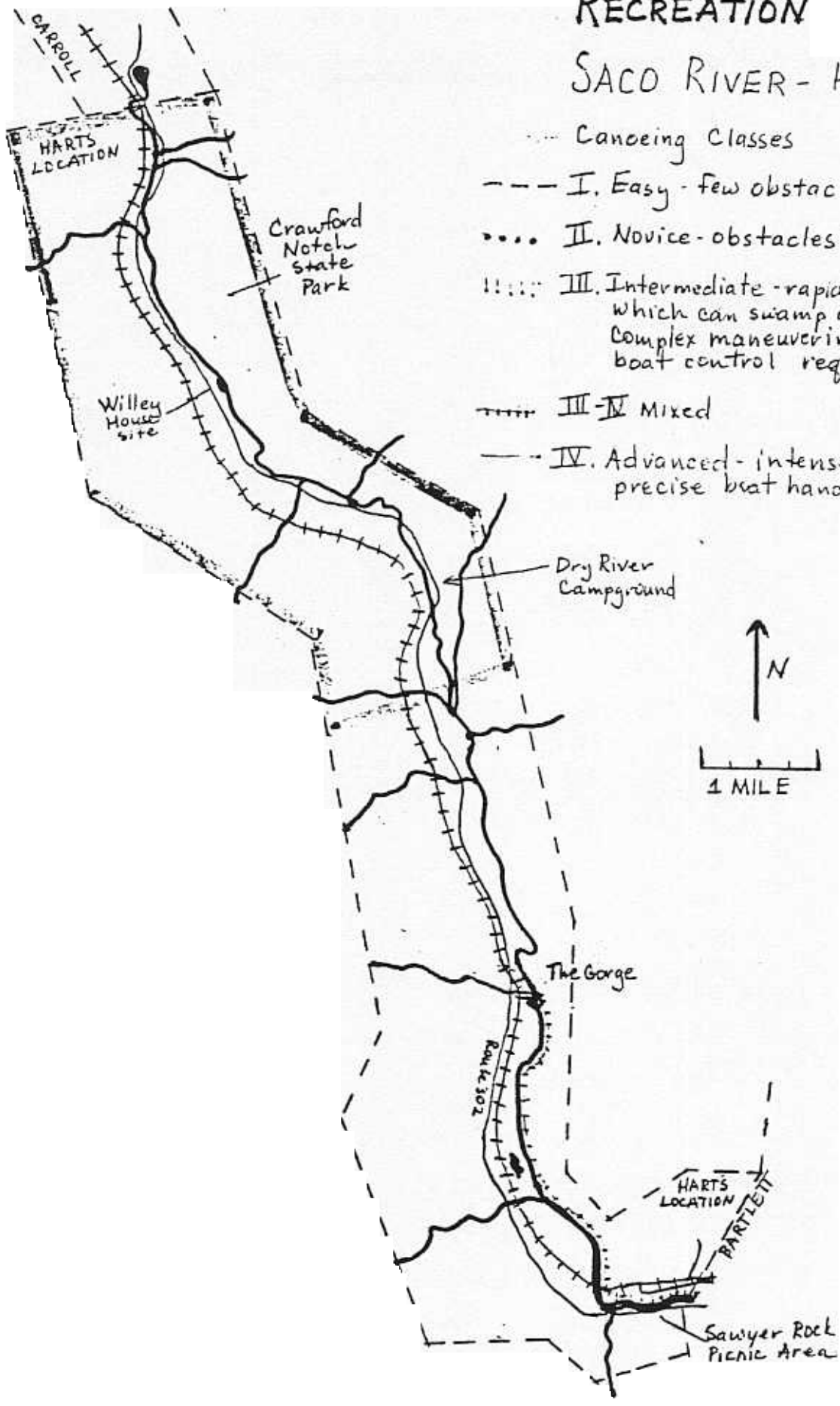
Natural Features

Saco River - Harts Locatio



RECREATION

SACO RIVER - HARTS LOCATIO



..... Canoeing Classes

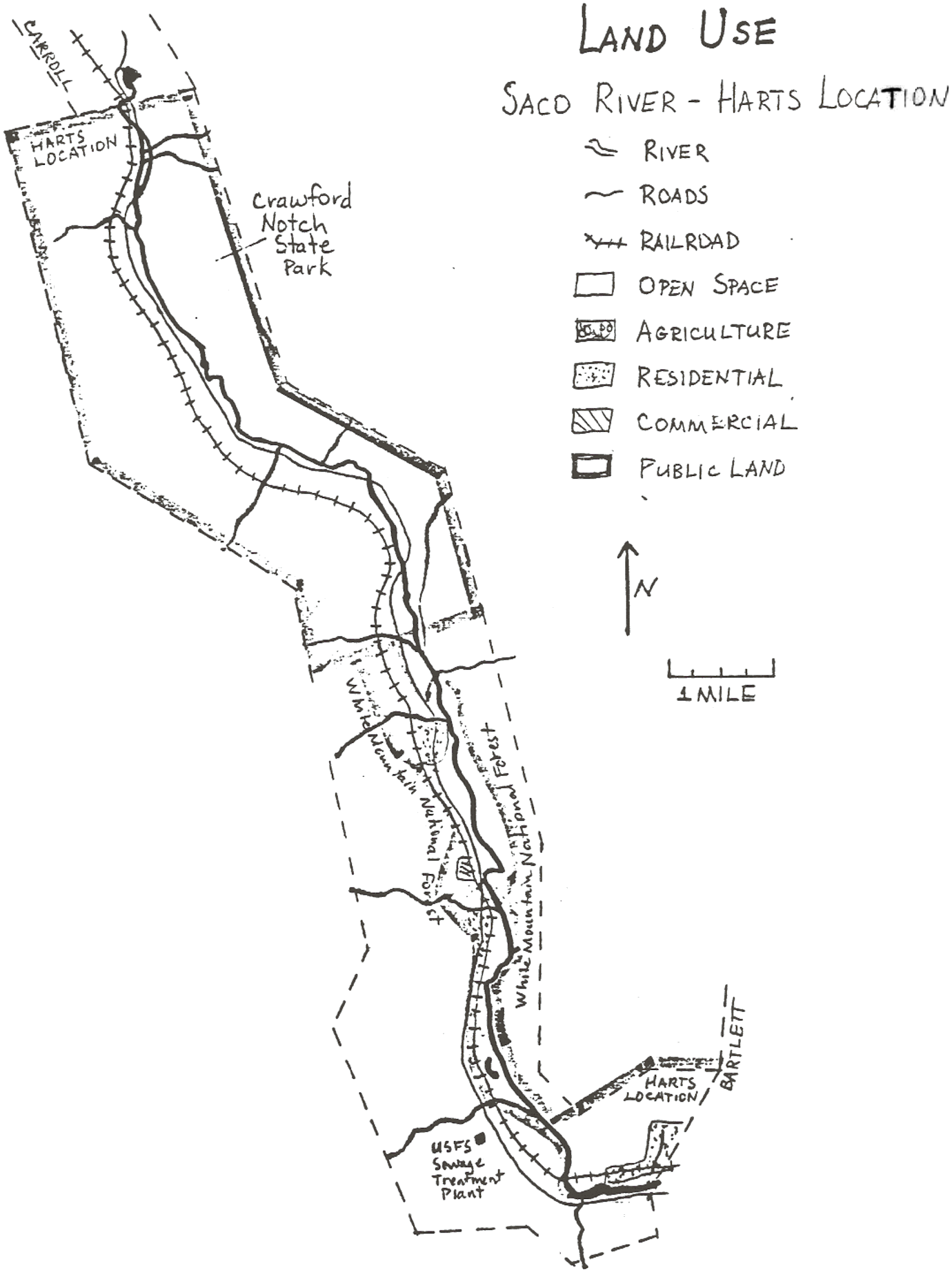
– – – I. Easy - few obstacles

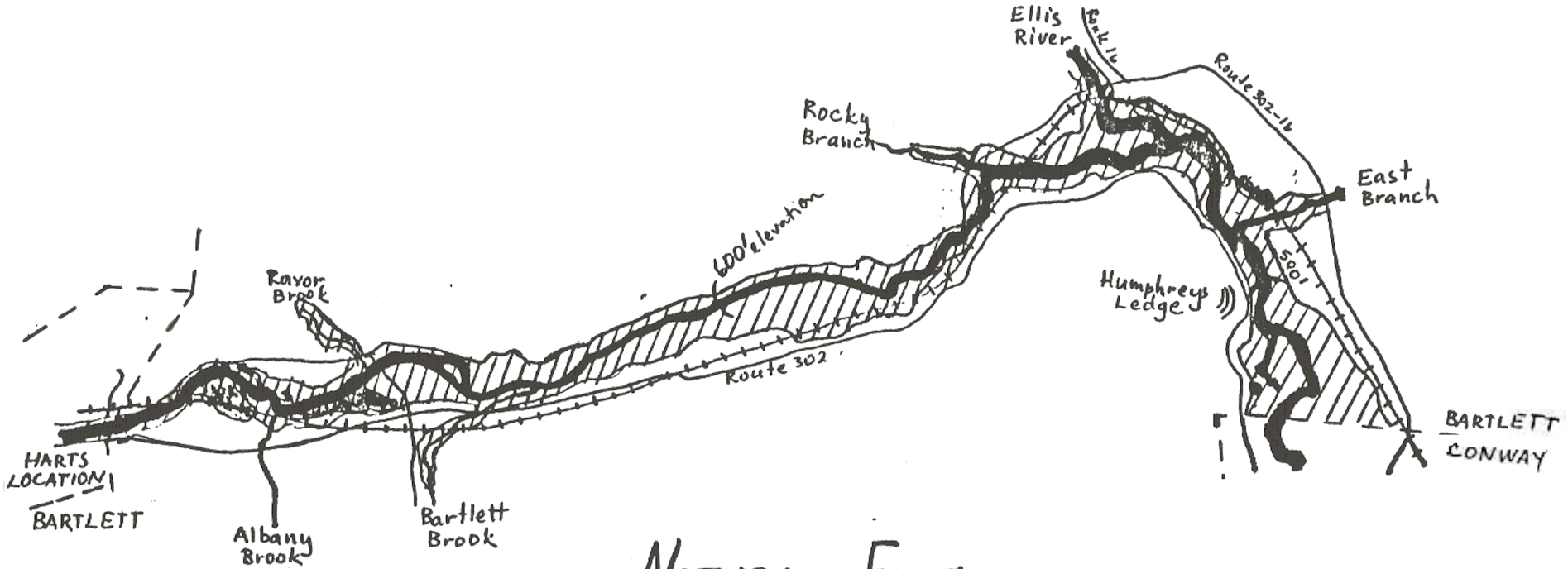
• • • • II. Novice - obstacles easily avoided

!!:::: III. Intermediate - rapids with waves which can swamp an open canoe. Complex maneuvering and good boat control required.

III-IV Mixed

—— IV. Advanced - intense rapids requiri precise boat handling.


LAND USE
SACO RIVER - HARTS LOCATION
RIVER
ROADS
RAILROAD
OPEN SPACE
AGRICULTURE
RESIDENTIAL
COMMERCIAL
PUBLIC LAND
N
1 MILE
CARROLL
HARTS LOCATION
Crawford Notch State Park
White Mountain National Forest
White Mountain National Forest
HARTS LOCATION
BARTLETT
USFS Sewage Treatment Plant



NATURAL FEATURES

SACO RIVER BARTLETT

N

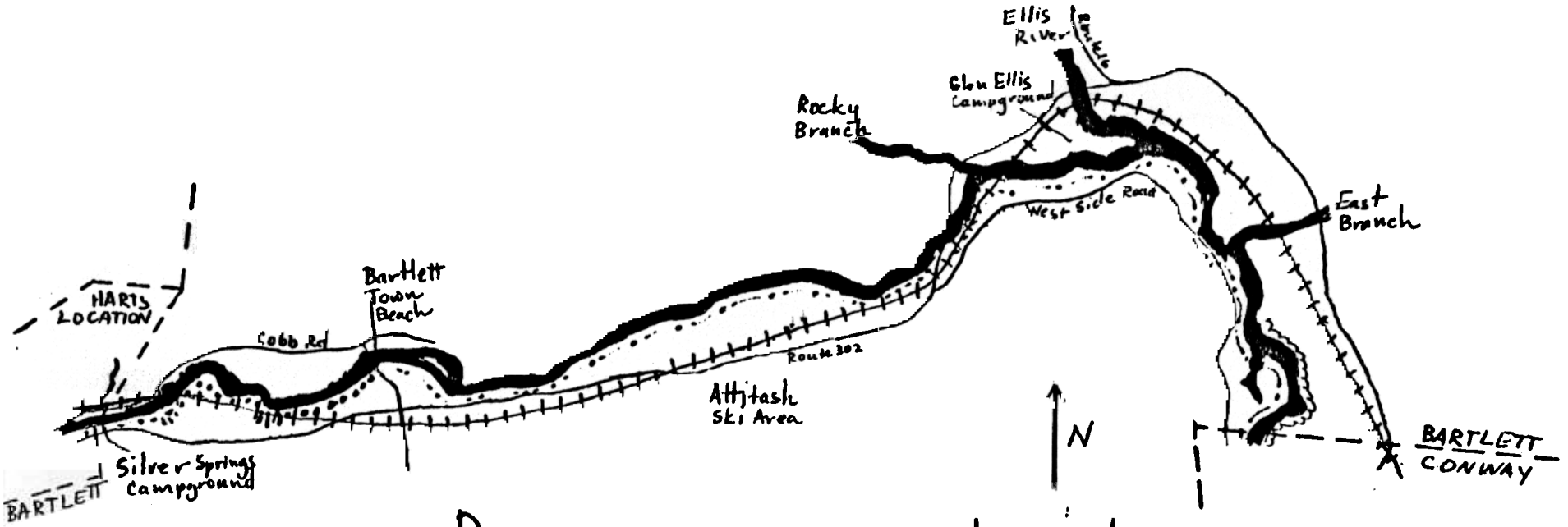
RIVER

CLIFFS

WETLANDS

FLOODPLAIN

MILE



RECREATION

SACO RIVER - BARTLETT

~~~~ Fly-fishing only

Canoeing classes

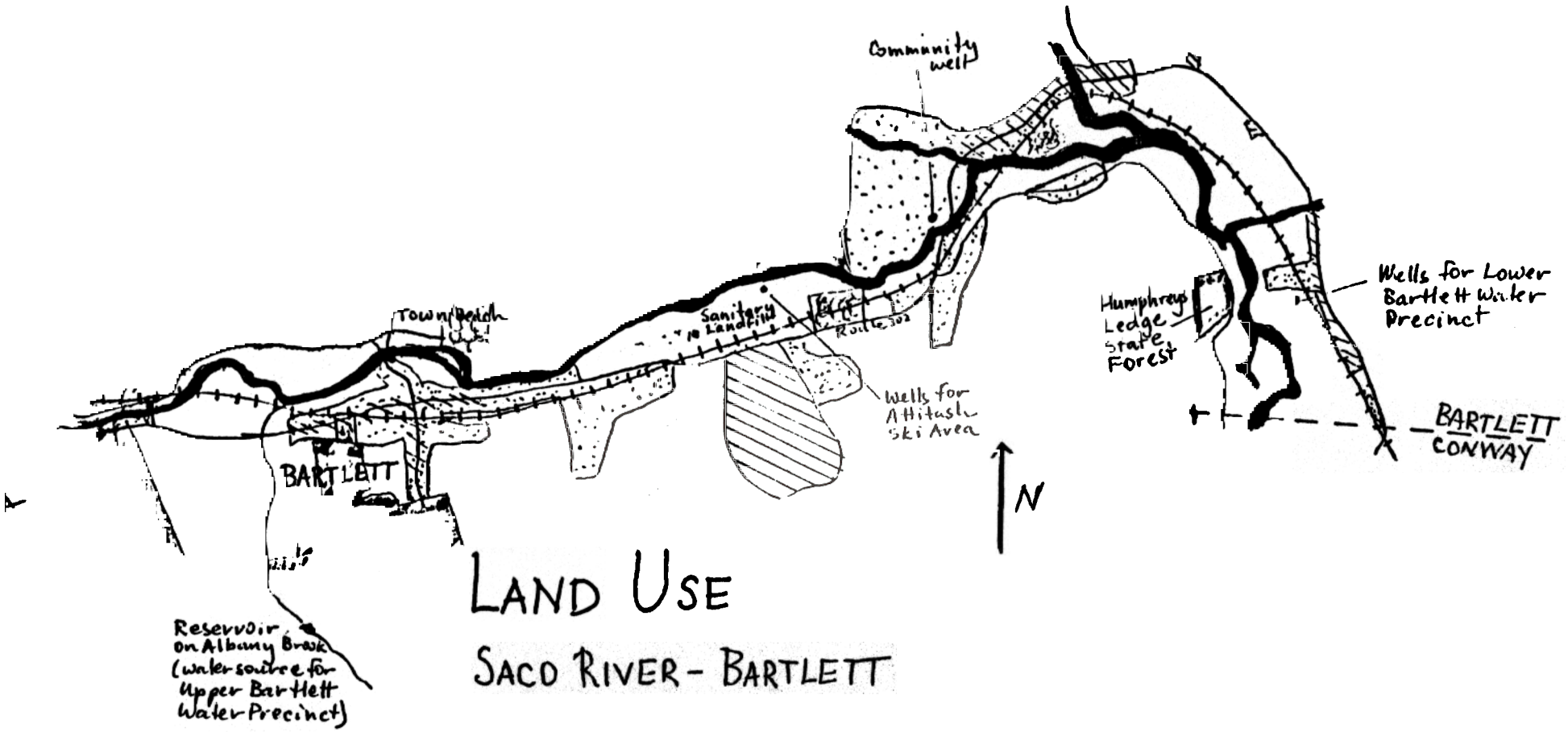
--- I. Easy - few obstacles

-·-· I-II Mixed

····· II. Novice - obstacles easily avoided

IIIII. III. Intermediate - rapids with waves which can swamp an open canoe. Complex maneuvering and good boat control required

—·· IV. Advanced - intense rapids requiring precise boat handling.
~~~~

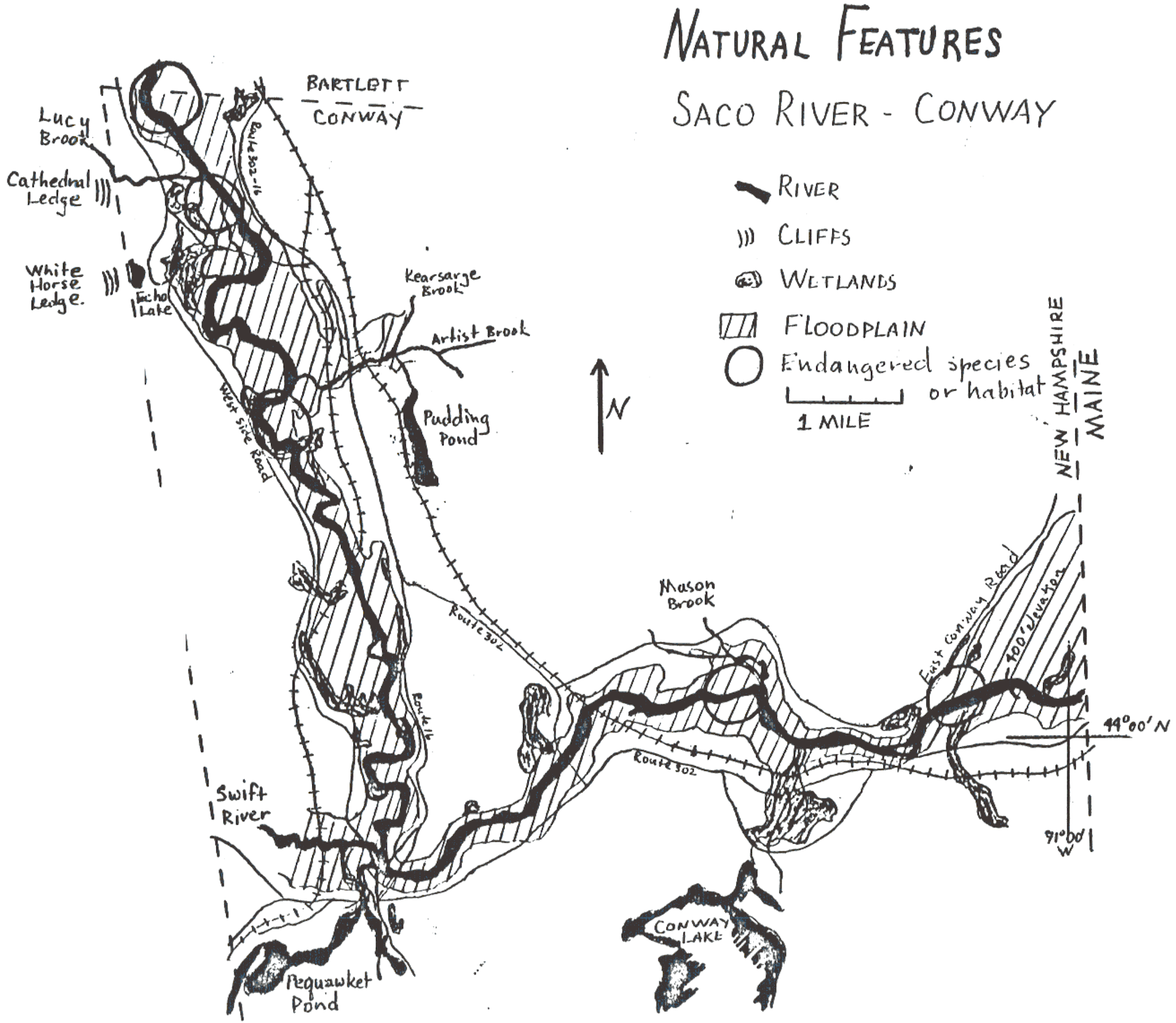


LAND USE

SACO RIVER - BARTLETT

- RIVER
- ROADS
- RAILROAD
- OPEN SPACE
- AGRICULTURE
- RESIDENTIAL
- COMMERCIAL
- PUBLIC LAND

1 MILE


NATURAL FEATURES
SACO RIVER - CONWAY
RIVER
CLIFFS
WETLANDS
FLOODPLAIN
Endangered species or habitat
1 MILE
N
BARTLETT
CONWAY
Lucy Brook
Cathedral Ledge
White Horse Ledge
Echo Lake
Route 302-16
Kearsarge Brook
Artist Brook
Pudding Pond
West Side Road
Route 302
Route 16
Mason Brook
East Conway Road
400' Elevation
NEW HAMPSHIRE
MAINE
44°00' N
91°00' W
Route 302
Swift River
Pequawket Pond
CONWAY LAKE

RECREATION

SACO RIVER - CONWAY

~~ Fly-Fishing only

Canoeing Classes

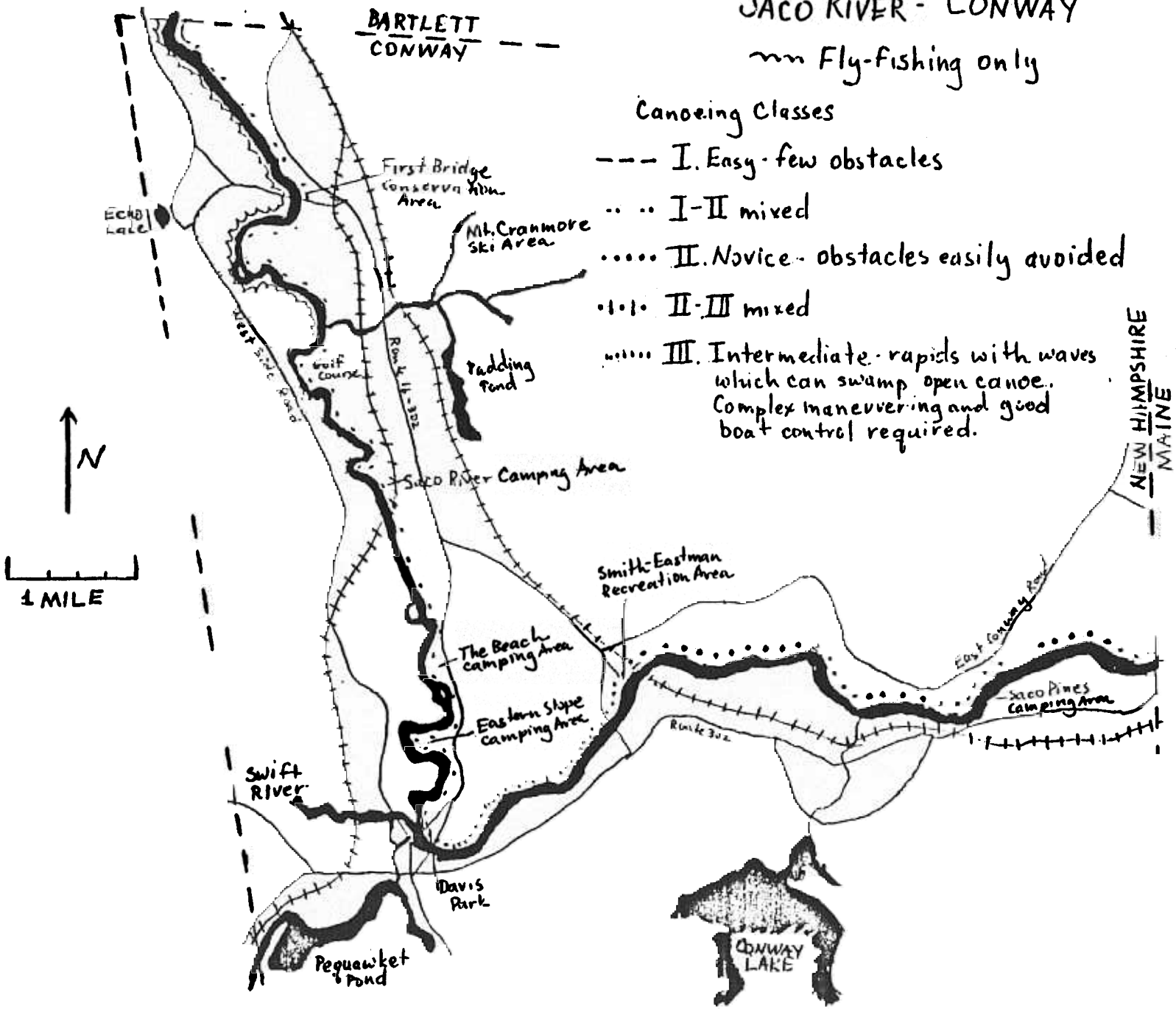
--- I. Easy - few obstacles

.. .. I-II mixed

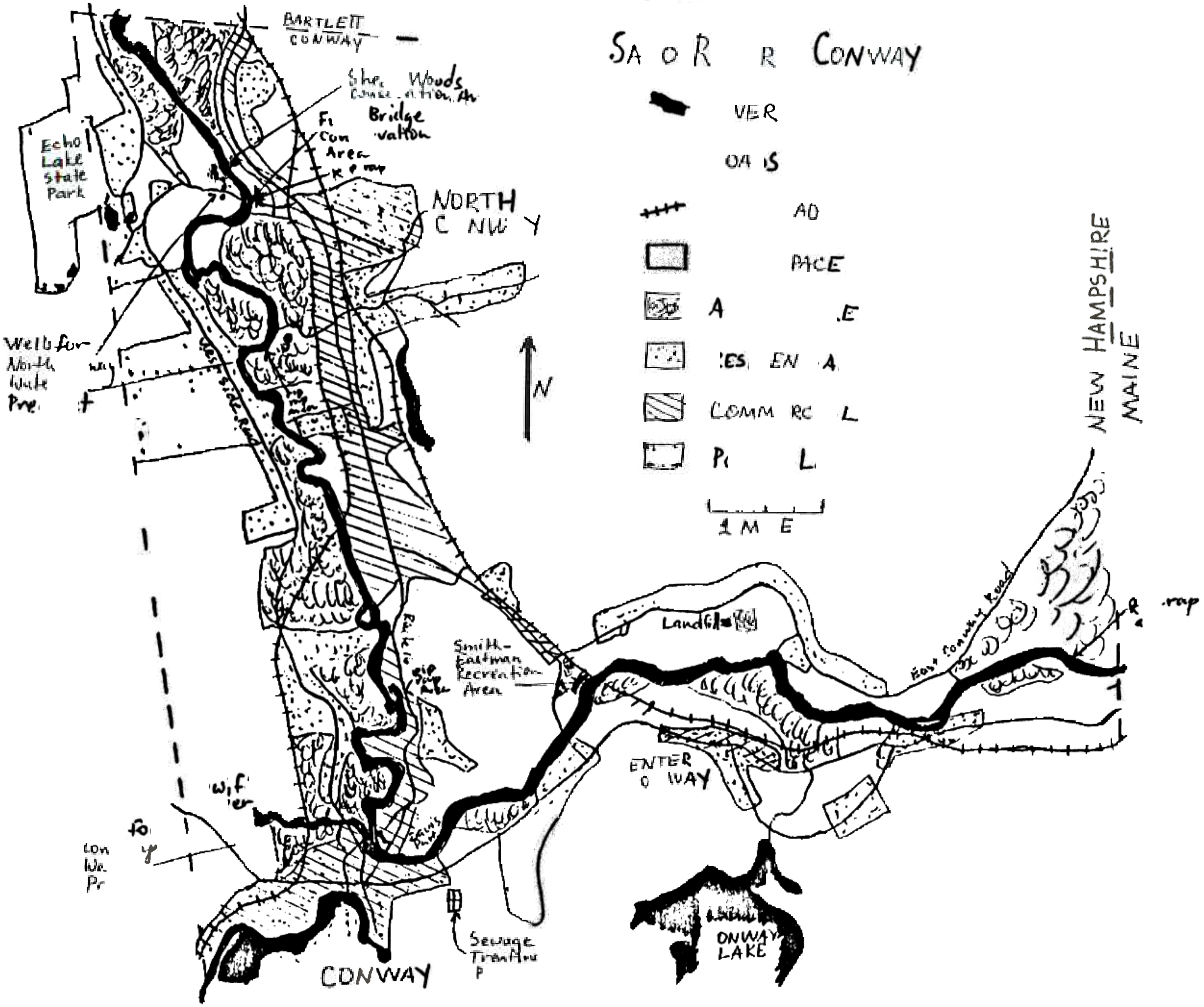
..... II. Novice - obstacles easily avoided

·1·1· II-III mixed

..... III. Intermediate - rapids with waves which can swamp open canoe. Complex maneuvering and good boat control required.



LAND USE



BARTLETT
CONWAY
Echo Lake State Park
Bridge
NORTH
Wells for North
N
COMM
1 M E
NEW HAMPSHIRE
MAINE
East Conway Road
Landfill
Smith-Eastman Recreation Area
Sewage
CONWAY
LAKE

Saco and Swift River Landowner Questionnaire

Compilation and Analysis of Results

By

Sarah Kimball

Saco River Advisory Council

October, 1989

forestry. Only 7% indicated some type of commercial use of their property.

The river played a role in the decision to purchase their property for 75% of the respondents. Scenic beauty and/or recreational opportunity were given as reasons by 31% of the respondents, while 8% said that they had specifically wanted riverfront property. The land had been in the family of 6% of the respondents.

When asked what they planned to do with their land in the future, 81% answered that they would continue its present use. Other plans included building a residence (for 8%), subdividing (for 6%), and commercial development (for 6%).

The landowners were asked about public use of their land. Public access to the river was permitted by 30% of the respondents. Twenty eight percent did not indicate any problems related to the public use of the rivers. Of the problems that were identified, littering was the most common problem (checked off by 47% of the respondents), followed by failure to respect "no trespassing" signs (38%), rowdy behavior (24%), vandalism (24%), and noise (23%). Actions in response to the problems were taken by 30% of the respondents, and included calling the police, dealing with the individuals directly, posting signs, cleaning up litter, and erecting fencing and gates.

In the section concerning the respondents' attitudes toward the river, 94% thought that the river contributed to the quality of life in their community. The specific factors indicated were: scenic value (91%), boating (83%), fishing (78%), wildlife and waterfowl habitat (74%), free flowing water (73%), open space (67%), and swimming (62%). The respondents were then asked to rank characteristics associated with the rivers from Very Important to Very Unimportant. The characteristics ranked as Very Important for a majority of the respondents were: water quality; scenic quality; free flowing rivers; wildlife, waterfowl and fisheries habitat; access for swimming, fishing and boating. Ranked as Very Unimportant were industrial and commercial development opportunity. There was not a concensus on the importance of residential development opportunity in that the number of respondents ranking it very important was equivalent to the number ranking it very unimportant. The majority of the respondents selected the ranking midway between.

The landowners were asked to check off any problems they had noticed along the river. Flooding was noted by 48% of the respondents, and 42% were concerned about erosion. In addition, 8 respondents identified specific areas where the erosive power of the river was removing some of their acreage. Water pollution was checked off by 21% of the respondents, with 7 respondents commenting on their concern that the proposed sewage treatment plant would be a potential source of pollution. Thirty two percent of the respondents felt that development was occurring

wanted to see the beauty and pristine qualities of the rivers protected from pollution and overuse. One commenter realized some of the complexities of the issue when he said he would "support any program that balances the public and private use of the river and its shoreline while preserving its natural beauty" Others were not in favor of increased bureaucracy which would limit the rights of the individual landowner; they felt that those who wanted to preserve the land should purchase it. Some felt that protection at the state level would be more effective than at the town level because of the lack of expertise within the individual towns.

On the subject of taxes, some felt that taxes were already too high, and that existing tax money should be used more efficiently. Those retired on a set income were limited in how much they could pay. It was all right to allocate taxes for river protection, but some expressed reluctance to support new taxes.

The Saco River Advisory Council was urged to keep the public informed and involved throughout the designation process.

Conclusions

The Saco and Swift Rivers are important to the people who participated in the questionnaire, especially for the natural beauty, scenic qualities and recreational opportunities that the rivers provide. The rivers played a role in their decision to purchase their property, they contribute to their quality of life and are worthy of designation as special rivers in the state of New Hampshire.

Water quality is a characteristic of the rivers that the respondents felt was very important. Of all the qualities of the rivers that could be protected, water quality was identified by the highest percentage of respondents as needing protection.

The respondents indicated that industrial and commercial development opportunities were not important to them. In fact, they said that industrial and commercial shoreline development should be limited. Though there was not a concensus on the importance of residential development opportunities, a majority of the respondents felt that there should be minimum setback requirements for new construction.

The existing free flowing condition of the rivers is important to the landowners. They said the rivers should be protected as free flowing, and many respondents indicated that dam construction should be limited to achieve this purpose.

The participants supported action by the towns to protect the river in their community by a sizable majority. They were also willing to support the allocation of town taxes for river protection.

6. Do you permit public access to the river(s) across your property?
[ ] Yes [ ] No

7a. Have you been affected by any of the following problems related to public use of the river(s)? (Please check as many as apply.)

[ ] Failure to respect "no trespassing" signs
[ ] Littering
[ ] Noise
[ ] Vandalism
[ ] Overuse
[ ] Fire
[ ] Rowdy behavior
[ ] Other (please specify) _____

7b. If you have had problems related to public use of your land, what actions have you taken in response?

The next questions refer to the rivers and your community in general.

8. Do you think the river contributes to the quality of life in your community?
[ ] Yes [ ] No

If yes, how? (Please check as many as apply.)

[ ] Open space
[ ] Agriculture
[ ] Water supply
[ ] Wildlife and waterfowl habitat
[ ] Wetland ecosystems
[ ] Swimming
[ ] Boating
[ ] Fishing
[ ] Scenic value
[ ] Free flowing water
[ ] Shoreline development
[ ] Historical/Cultural sites
[ ] Other (please specify) _____

9. Do you believe the Saco and Swift are worthy of designation as special rivers in the State of New Hampshire?
[ ] Yes [ ] No

12. Do you believe that any of the following general measures should be taken to protect the river(s) and the special opportunities it (they) offer to the region? (Please check as many as apply.)

[ ] Protect free flowing nature of river
[ ] Limit residential shoreline development
[ ] Limit commercial shoreline development
[ ] Limit industrial shoreline development
[ ] Protect scenic character of river corridor
[ ] Protect water quality
[ ] Provide public access
[ ] Provide recreation facilities
[ ] Protect wildlife and waterfowl habitat
[ ] Protect fisheries habitat
[ ] No additional protection needed
[ ] Other (please specify) _____

13. Do you feel any of the specific steps listed below would be appropriate for river and river corridor protection? (Please check as many as apply.)

[ ] Stricter enforcement of local and state regulations regarding water and wetlands
[ ] Minimum setback requirements for new construction
[ ] Floodplain protection regulations
[ ] Purchase of property in the river corridor (from willing sellers)
[ ] Purchase of development rights in the river corridor
[ ] Voluntary easement donation program
[ ] Limit dam construction
[ ] No additional protection needed
[ ] Other (please specify) _____

14. Are you presently or have you considered using any of the following land protection techniques on your property? (Please check as many as apply.)

	In Use	Have Considered
Conservation easements	[ ]	[ ]
Development restrictions	[ ]	[ ]
Scenic restrictions or easements	[ ]	[ ]
Deed restrictions	[ ]	[ ]
Land donation	[ ]	[ ]
Current use	[ ]	[ ]
Other (please specify) _____	[ ]	[ ]

15a. Do you feel the town should take action to protect the river in your community?
[ ] Yes [ ] No

15b. If yes, are you willing to support allocating town taxes if necessary?
[ ] Yes [ ] No

Please add any general comments you may wish to make regarding the Saco and Swift Rivers on a separate sheet of paper or in the margins.

Thank you for completing the questionnaire.